

CLAIMS

1. A Fresnel lens comprising at least one first prism (28, 40; 41) and one second prism (34; 46), each prism having a first side (30, 36; 42, 48) and a second side (32, 38; 44, 50) which forms with a main axis (AA') an angle greater than that formed by the first side (30, 36; 42, 48) and the main axis (AA'),
the second side (32; 44) of the first prism (28, 40; 41) being designed to collimate the light received (R1; R3) from a light source in line with the main axis (AA'),
said Fresnel lens having symmetry of revolution about said main axis,
characterized in that the second side (38; 50) of the second prism (34; 46) is designed to transmit the light received (R2; R4) from the source in a first direction (R2'; R4') different from the main axis (AA').
2. The Fresnel lens as claimed in claim 1, in which the first prism (40) is adjacent to the second prism (34).
3. The Fresnel lens as claimed in claim 1 or 2, in which the first direction (R2'; R4') is divergent from the main axis (AA').
4. The Fresnel lens as claimed in one of claims 1 to 3, in which the first direction (R2'; R4') and the main axis (AA') form between them an angle greater than 1°.
5. The Fresnel lens as claimed in claim 4, in which the first direction (R2'; R4') and the main axis (AA') form between them an angle greater than 2°.

6. The Fresnel lens as claimed in one of claims 1 to 5, in which the first direction (R2'; R4') and the main axis (AA') form between them an angle less than 10°.
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7. The Fresnel lens as claimed in claim 6, in which the first direction (R2'; R4') and the main axis (AA') form between them an angle less than 5°.
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8. The Fresnel lens as claimed in one of claims 1 to 7, in which the first (28, 40) and the second (34) prisms work in reflection mode.
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9. The Fresnel lens as claimed in one of claims 1 to 7, in which the first (41) and the second (46) prisms work in refraction mode.
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10. The Fresnel lens as claimed in one of claims 1 to 7, in which the first prism works in a first reflective or transmissive mode and the second (46) prism works in a second reflective or transmissive mode different from the first mode.
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11. The Fresnel lens as claimed in one of claims 8 and 9, in which at least one third prism (28, 40) is designed to transmit the light received from the source in line with the main axis, the third prism working in a reflective or transmissive mode different from the working mode of the first prism.
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12. The Fresnel lens as claimed in any one of claims 8, 9 and 11, in which at least one fourth prism (34) is designed to transmit the light received from the source in a first direction different from the main axis, the fourth prism working in a reflective or transmissive mode different from the working mode of the second prism.
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13. A projection display device comprising:
- means of generating (2, 4) an image;
 - means (6) of projecting the image onto a screen
5 (10; 12);
 - the screen comprising a Fresnel lens (16) and
optical focus and/or diffusion elements (16),
in which the Fresnel lens conforms to one of
claims 1 to 11.